Programming Assignment #2: Book Store Sales Analysis

Description: This program will read a data file that contains book store sales for 12 months. Each month record will contain 6 category book sales (Math, CS, Physics, Chemistry, Biology, Geography). The file will be processed by the program and will produce a report.

The report contains the following parts:
1) The total, highest and lowest sales for each month among 6 category book sales
2) The total, highest and lowest sales for each category book among 12 month.
3) Sorting 12 months in descendent order of the total sale
4) Sorting 6 book categories in descendent order of the total sale
5) Search the sale by user inputting the month and book category

(See the attached sample input and output for example.)

Specifications:

1. All input data will be in an input file. The name of the data file that will be used for your program MUST BE **sale.dat**. You may need to create your own version of **sale.dat** to test your program before you turn it in. You must also submit a printout of the contents of this test file when you submit this project.
2. You need to use two dimensional array to store the book store sales
3. You need to write several functions in your program: For example: for finding highest, lowest, and total, sorting, and searching etc.
4. You need to do input validation for valid month and book category for searching

Requirements for Submission:

You must submit your C++ source code, which is .cpp file through myClass, and hand in
1. Design your algorithm using flow chart
2. A printed copy of your source code.
3. Your set of sample input data files
4. Your set of sample screen outputs corresponding to each input data file.
5. Program report: state clearly if your program doesn't work well. What's the problem? Or anything you want me to know. If you get the help from other students/resources, you need state clearly in your project report. You cannot copy others' work. It is individual program assignment!

Grading Rubric:

Algorithm design/flow chart	10
Workable Program	50
Correct output	20
Functions	15
Comments/readability of program	5

Sample Run

Sample Input File sale.dat contains:

```
50      61      32      43      51      45
108     121     82      97      88      75
51      65      37      44      56      47
48      66      39      40      55      36
50      60      36      49      51      42
49      60      36      49      53      56
46      69      36      38      49      37
110     112     78      92      83      80
58      69      38      42      51      44
53      66      38      41      50      42
52      63      31      40      52      48
50      63      38      39      49      40
```

Sample Output:

```
Month     Math      CS      Phy      Chem      Bio      Geo      Total    High    Low

Jan         50      61       32        43       51       45      282      61      32
Feb        108     121       82        97       88       75      571     121      75
Mar         51      65       37        44       56       47      300      65      37
Apr         48      66       39        40       55       36      284      66      36
May         50      60       36        49       51       42      288      60      36
Jun         49      60       36        49       53       56      303      60      36
Jul         46      69       36        38       49       37      275      69      36
Aug        110     112       78        92       83       80      555     112      78
Sep.        58      69       38        42       51       44      302      69      38
Oct         53      66       38        41       50       42      290      66      38
Nov         52      63       31        40       52       48      286      63      31
Dec         50      63       38        39       49       40      279      63      38

Total      725     875      521       614      688      592
High       110     121       82        97       88       80
Low         46      60       31        38       49       36
```

Sorting month in descending order of total sale

February	571
Aug	555
Jun	303
Sep	302
Mar	300
Oct	290
May	288
Nov	286
Apr	284
Jan	282
Dec	279
Jul	275

Sorting book category in descending order of total sale

CS	875
Math	725
Bio	688
Chem	614
Geo	592
Phy	521

Please Input Month and book category you want to search (-1 for exit)
Month: Feb
Category: CS
The total sale is 121

Please Input Month and book category you want to search (-1 for exit)
Month: Nov
Category: Geo
The total sale is 48

Please Input test score you want to search
-1
Bye!
Press any key to continue